REMARKS

Claims 1, 8-9 and 15 have been amended to further particularly point out and distinctly claim the subject matter regarded as the invention. No new matter has been added. The text of dependent claims 5-7, 11-12, 14, 19 and 22, which were previously presented, and 2-4, 13, 16-18 and 20-21, which are original, are unchanged, but their meaning is changed because they ultimately depend from amended claims.

Claims 10 and 23 have been cancelled.

New claims 24 through 34, inclusive, also particularly point out and distinctly claim subject matter regarded as the invention.

Record of Interview

On 17 December 2004 an interview was conducted by telephone between the Examiner and Stephen R. Uriarte, Reg. No. 40,854. The Examiner is thanked for granting this interview.

The Advisory Action, dated 23 November 2004, was discussed, including Examiner's reasons for denying Applicants' request for reconsideration.

The First 35 U.S.C. §102 Rejection

Claims 1-6, 8-12, 15-19 and 22-23 stand rejected under 35 U.S.C. §102(e) as being allegedly anticipated by Forsman et al., U.S. Pat. No.: 6,665,813 (hereinafter, "Forsman"). This rejection is respectfully traversed.

Independent Claim 1

A proper §102 rejection requires that a single reference anticipate the claimed invention as a whole. Each and every element recited in the claimed invention must be disclosed by this single reference.

Claim 1 has been amended to include additional limitations not disclosed in Forsman. Since a proper §102 rejection requires that each and every element disclosed in a claim must be shown by a single piece of cited prior art, Forsman fails to anticipate claim 1, rendering claim 1 allowable.

Dependent Claims 2-6

The argument set forth above is equally applicable to dependent claims 2 through 6, inclusive. Since the base claim(s) are allowable, the dependent claims must also be allowable.

Dependent Claim 22

The argument set forth above is equally applicable here. Since the base claim is allowable, the dependent claim must also be allowable.

Moreover, Forsman at col. 4, lines 18-32, describes the use of boot code in a computer system claim 22 and the different approaches to storing the boot code. It neither teaches nor discloses the elements recited in claim 22 , including the element of "associating a memory address to the first data structure". Consequently, Forsman fails to anticipate claim 22, rendering claim 22 allowable for this additional reason.

Cancelled Claim 23

Claim 23 has been cancelled, rendering the 35 U.S.C. §102(e) rejection moot.

New Claims 24-31

Claims 24 through 31 are new and ultimately depend on claim 1 and thus, the arguments above are equally applicable here. Since the base claim(s) are allowable, the dependent claims must also be allowable.

Independent Claim 8

Claim 8 has been amended to include additional limitations not disclosed in Forsman. Since a proper §102 rejection requires that each and every element disclosed in a claim must be shown by a single piece of cited prior art, Forsman fails to anticipate claim 8, rendering claim 8 allowable.

Dependent Claims 9-12

Claims 9-12 are ultimately dependent on claim 8 and, thus, the arguments above are equally applicable here. Since the base claim(s) are allowable, the dependent claims must also

be allowable.

Independent Claim 15

Claim 15 has been amended to include additional limitations not disclosed in Forsman. Since a proper §102 rejection requires that each and every element disclosed in a claim must be shown by a single piece of cited prior art, Forsman fails to anticipate claim 15, rendering claim 1 allowable.

Dependent Claims 16-21

Claims 16-21 are ultimately dependent on allowable claim 15 and, thus, the arguments above are equally applicable here. Since the base claim(s) are allowable, the dependent claims must also be allowable.

The Second 35 U.S.C. §102 Rejection

Claims 15-19 stand rejected under 35 U.S.C. §102(b) as being allegedly anticipated by Froemke et al., U.S. Pat. No.: 5,239,640 (hereinafter, "Froemke"). This rejection is respectfully traversed.

Independent Claim 15

A proper §102 rejection requires that a single reference anticipate the claimed invention as a whole. Each and every element recited in the claimed invention must be disclosed by this single reference.

Claim 15 has been amended to include additional limitations not disclosed in Froemke. Since a proper §102 rejection requires that each and every element disclosed in a claim must be shown by a single piece of cited prior art, Froemke fails to anticipate claim 15, rendering claim 15 allowable.

In addition, the Examiner rejects claim 15 on the assertion that Froemke discloses "defining in the non-volatile memory a location of a data structure with at least two base block copies [col. 1, lines Fig 1, 22 and 26, Fig 2, 30-36], and rebuilding the location of the data structure in the event one base block copy cannot be located or verified by using another base

10

block copy [col. 4, lines 28-36]".

Applicants respectfully disagree. Froemke does not disclose the use of a base block and or the use of copies. Elements 22 and 26 in Fig. 1 are not copies or each other because they hold different types of data. Write staging area, element 26, holds both write commands and data, while element 22 only holds data. Froemke col. 4, lines 3-9. Since these elements do not hold the same kind of data, they cannot be considered copies of each other, rendering the §102 rejection against claim 15 improper.

Further, element 22 is a DASD and comprised of elements 30-36 in Fig. 3. Froemke discloses that if one of the elements (30, 32, 34 and 36) in the DASD fails, an XOR operation can be performed between the checksum stored in checksum storage 24 and the remaining source data that can still be read from the remaining elements of the DASD assembly that have not failed. Id., col. 5, lines 23–29, and Table 2. The data in the failed element comprising part of the DASD assembly is reconstructed by performing an XOR operation between the checksum and the remaining source data. Thus, Froemke discloses a storage technique that uses checksum data and XOR operations to rebuild source data without the use of copies. The invention as recited in claim 15 does not use this technique, and, hence, Froemke fails to anticipate claim 15 for this additional reason, rendering claim 15 allowable.

In addition to the above, elements 22 and 26 are not copies of each other because of the preempt function taught by Froemke. Froemke at col. 4, lines 37-52, and col. 6, lines 14-17 and col. 8, lines 32-44. For this additional reason, Froemke fails to anticipate claim 15, rendering claim 15 allowable.

Dependent Claims 16, 17 and 19

Claims 16, 17 and 19 ultimately depend on claim 15 and thus, the arguments above are equally applicable here. The base claim(s) being allowable, the dependent claims must also be allowable.

Dependent Claim 18

Claim 18 ultimately depends on claim 15 and thus, the arguments stated for claim 15 are equally applicable here. The base claim being allowable, the dependent claim must also be

allowable.

In addition, the Examiner asserts that <u>Froemke</u> at col. 4, lines 37-43 discloses "defining the location of the data structure includes selecting each of the base copies so at most one can be corrupted." Applicants respectfully disagree. Froemke only discloses the use of a preempt function. It does not disclose avoiding corruption but preempting writes that would otherwise occur in the DASD assembly, thereby reducing write latency. <u>Id.</u> At col. 4, lines 47-51. <u>See</u> also, <u>Id.</u> at col. 8, lines 40-44. This rationale for reduced write latency not only fails to disclose the elements of claimed invention but also teaches away from it. For this additional reason, claim 18 should be found allowable.

The First 35 U.S.C. §103 Rejection

Dependent claims 7, 13, 14, 20, and 21 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over <u>Forsman et al.</u>, in view of <u>See</u> (U.S. Pat. No.: 6,170,066). This rejection is respectfully traversed.

Examiner's Office Action Not Clear

Applicants respectfully observe that it is not clear if the Examiner is also citing <u>Froemke</u> as a basis for this §103 rejection. The Examiner uses <u>Froemke</u> instead of <u>Forsman</u> as a basis for this rejection but combines <u>Forsman</u> and <u>See</u> when actually asserting the §103 rejection in the <u>Office Action</u>. Applicants have made the response below to this rejection for claims 1, 7, 8, 13, 14, 15, 20 and 21 solely to provide a responsive reply to the <u>Office Action</u>. Applicants, however, believe they cannot fully respond to this rejection since it is not clear which of the references are applicable to the rejected claims.

Independent Claims 1, 8 and 15

<u>Froemke</u> fails to teach or suggest the elements recited in independent claims 1, 8 and 15, respectively, for the reasons stated in the Applicants' prior response to office action. In the alternative, <u>Forsman</u> also fails to teach or suggest the elements recited in independent claims 1, 8 and 15 for the reasons stated above, respectively, rendering independent claims 1, 8 and 15 allowable.

Dependent Claims 7, 14 and 21

Claims 7, 14 and 21 depend on allowable claims 1, 8 and 15, respectively, and, thus, should be allowable because they ultimately depend on allowable independent claims.

Further, See does not teach using pre-erased recovery blocks. See instead discloses delayed erase operations. See delays erasing an entire block in order to avoid "erasing all of the valid information that remains in the block along with invalid information." See, col. 1, lines 62-65. See discloses a process of "writing new information to a new memory area rather than" writing "over the old data; and the old data is marked invalid. Then, *after a sufficient portion of a block has been marked invalid*, all valid information remaining in the block is written to the new memory area; and the entire block may then be erased, typically using a background process." See, col. 1, line 66 - col. 2, line 3. (Emphasis Added). Consequently, See fails to teach or suggest the use of "pre-erased" recovery blocks as recited in the present invention.

Since a proper §103 rejection requires that the recited references teach or suggest the combination of elements in a rejected claim, Applicants therefore believe that claims 7, 14 and 21 are patentable over the cited references.

Dependent Claims 13 and 20

Claims 13 and 20 are ultimately dependent on claims 8 and 15, respectively, and, thus, the arguments above are equally applicable here. Since the base claims are allowable, the dependent claims must also be allowable.

Further, the Examiner states that "Forsman discloses the essential elements of the claimed invention except for pointers to other data structures. See '066 discloses pointers to other data structures [col. 7, lines 12-15]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Forsman to include pointers to other data structures as taught by See '066 for the purpose of indicating an empty data structure." Applicant respectfully disagrees. Neither Forsman nor See contain any teaching or suggestion that they may be combined in the manner suggested. Thus, it would not have been obvious to one of ordinary skill in the art to combine Forsman with See, rendering their combination improper.

Even if <u>Forsman</u> and <u>See</u> were combined, <u>See</u> only suggests the use of pointers for the purpose of indicating full data blocks. Nothing in <u>See</u> teaches or suggests the embodiment recited in claims 13 or 20 do not the use pointers for the purpose of indicating full data blocks.

Moreover, claims 13 and 20 each recite, in part:

"wherein the data structure includes pointers to other data structures selected from a group consisting of remap information, wear-leveling tables, configuration data, recovery information, and a combination thereof".

Neither <u>Forsman</u> nor <u>See</u> even in combination fail to teach or suggest all of the elements recited in claim 13 or 20 as required under a proper §103 rejection.

For these reasons, Applicants therefore believe that claims 13 and 20 are patentable over the cited references.

<u>The Second 35 U.S.C. §103 Rejection</u>

Dependent claims 20 and 21 stand rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over <u>Froemke et al.</u>, in view of <u>See</u> (U.S. Pat. No.: 6,170,066). This rejection is respectfully traversed.

Claims 20 and 21 are ultimately dependent on amended claims 8 and 15, respectively, and, thus, the arguments above are equally applicable here. Since the base claims are allowable, the dependent claims must also be allowable.

<u>Independent Claim 15</u>

In addition, the Examiner states that "Froemke discloses the essential elements of the claimed invention except for pointers to other data structures. See '066 discloses pointers to other data structures [col. 7, lines 12-15]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Froemke to include pointers to other data structures as taught by See '066 for the purpose of indicating an empty data structure [col. 7, line 12-15]." Applicants respectfully disagree.

Applicants respectfully disagree because there is no teaching or suggestion in either

Froemke or See to support their combination. See does not use or relate to the inventive concepts, such as using a preempt function combination with a write staging storage area and DASD assembly, disclosed in Froemke. Consequently, the combination of these references as a basis for the §103 rejection is improper and is made in hindsight, rendering claim 20 allowable.

Moreover, even if combined, Froemke in view of See fail to disclose all of the elements recited in claim 15. First, Froemke does not disclose the use of a base block and or the use of copies. Elements 22 and 26 in Fig. 1 are not copies or each other because they hold different types of data. Write staging area, element 26, holds both write commands and data, while element 22 only holds data. Froemke col. 4, lines 3-9. Since they do not hold the same kind of data, these elements cannot be considered copies.

Second, element 22 is a DASD and is comprised of elements 30-36 in Fig. 3. Froemke discloses that if one of the elements (30, 32, 34 and 36) in the DASD fails, an XOR operation can be performed between the checksum stored in checksum storage 24 and the remaining source data that can still be read from the remaining elements of the DASD assembly that have not failed. Id., col. 5, lines 23–29, and Table 2. The data in the failed element comprising part of the DASD assembly is reconstructed by performing an XOR operation between the checksum and the remaining source data. Thus, Froemke discloses a storage technique that uses checksum data and XOR operations to rebuild source data without the use of copies.

Last, elements 22 and 26 are not copies of each other because of the preempt function disclosed in Froemke at col. 4, lines 37-52, col. 6, lines 14-17, and col. 8, lines 32-44.

Consequently, for the reasons stated above, claim 15 should be found allowable.

Dependent Claim 20

Claim 20 ultimately depends on claim 15 and, thus, the arguments stated for claim 15 are equally applicable here. Since the base claim is allowable, the dependent claim must also be allowable.

Moreover, claim 20 recites, among other things, "wherein the data structure includes pointers to other data structures selected from a group consisting of *remap information, wear-leveling tables, configuration data, recovery information*, and a combination thereof".

(Emphasis Added). <u>See</u> only teaches or suggests the use of pointers for the purpose of indicating full data blocks. Nothing in <u>See</u> teaches or suggests the claimed invention because the present invention is not limited to the use of pointers for the purposes of indicating full data blocks. Hence, for these additional reasons, claim 20 should be found allowable.

<u>Dependent Claim 21</u>

Claim 20 ultimately depends on claim 15 and, thus, the arguments stated for claim 15 are equally applicable here. Since the base claim is allowable, the dependent claim must also be allowable.

Moreover, claim 21 recites, among other things, "wherein the non-volatile memory includes pre-erased recovery blocks; and the base block copies are written to pre-erased recovery blocks". <u>See</u>, however, does not teach using pre-erased recovery blocks. <u>See</u> instead discloses delayed erase operations. <u>See</u> delays erasing an entire block in order to avoid "erasing all of the valid information that remains in the block along with invalid information." <u>See</u>, col. 1, lines 62-65.

<u>See</u> discloses a process of "writing new information to a new memory area rather than" writing "over the old data; and the old data is marked invalid. Then, *after a sufficient portion of a block has been marked invalid*, all valid information remaining in the block is written to the new memory area; and the entire block may then be erased, typically using a background process." <u>See</u>, col. 1, line 66 - col. 2, line 3. (Emphasis Added). Consequently, <u>See</u> fails to teach or suggest the use of "pre-erased" recovery blocks as recited in present invention, rendering claim 21 allowable for this additional reason.

It is believed that the above-identified patent application is now in condition for allowance.
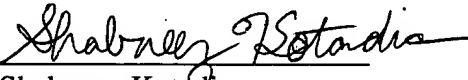
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If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

Respectfully submitted,
BiTMICRO Networks, Inc.

Dated: January 4th, 2005

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